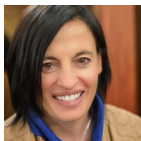


# SEMICON® EUROPA

NOV 14-17, 2023 | MUNICH, GERMANY



## imec ITF



K. Marent  
EVP & Chief Marketing & Communications Officer  
imec, Leuven, Belgium



### Biography

Katrien has an engineering degree in microelectronics. She joined imec in 1992 as analog design engineer and specialized in design of low-noise readout electronics for high-energy physics. In 1999, she became press responsible and scientific editor at imec's business development division and was responsible for authoring and editing the research organization's numerous company technical documents and publications. In 2001, she was appointed corporate communications director at imec. Her responsibilities expanded in August 2007, when she got the position of external communications director including corporate, marketing and outreach communications. In October 2016, she became VP corporate, marketing and outreach communication. Since April 2020 she is Executive Vice President & Chief Marketing and Communications Officer and member of the executive board of imec.

### Towards Netzero for the IC industry



L.-A. Ragnarsson  
Program Director Sustainable Semiconductor  
Technologies and Systems (SSTS)  
imec, Leuven, Belgium



### Abstract

Semiconductor technology is essential for enabling a sustainable future, but it also poses significant environmental challenges, such as high emissions, water use, resource depletion, and e-waste. Imec's Sustainable Semiconductor Technologies and Systems (SSTS) program aims to address these challenges by reducing the environmental impact of fab processes. In this presentation, you will discover how imec leverages its unique position in the semiconductor ecosystem to collect and analyze data, establish methodological standards, and share emissions information. You will also learn about the three pillars of SSTS: assess, improve, and disrupt, which guide imec's research and innovation efforts to make high impact processes more sustainable and to explore new technologies that could bring substantial sustainability improvements. Finally, you will hear about some of the success stories and collaborations that imec has initiated with industry partners to foster the adoption of sustainable manufacturing across the IC value chain.

**Biography**

**Lars Åke Ragnarsson** received the M.S. degree and the PhD degree in electrical engineering from Chalmers University of Technology, Göteborg, Sweden, in 1993 and 1999, respectively. Between 2000 and 2002, he did postdoctoral studies with the IBM T.J. Watson Research Center, Yorktown Heights, NY, focusing mainly on the electrical characterization of high-k dielectrics. Since 2002, he has been with imec in Leuven, Belgium, focusing on the development of advanced technologies using high-  $\kappa$  dielectrics and metal gates. Today Lars-Åke is a scientific director in compute and memory technologies with a strong focus on the Sustainability of current and future technologies.

## Transparency, Ambition and Collaboration - Advancing the Climate Agenda for the Semiconductor Value Chain



M. Bhat  
VP Sustainability Programs  
SEMI, Milpitas, California, United States of  
America



### Abstract

In 2022 we launched the first ever Semiconductor Climate Consortium (SCC) where members believed that with our accumulated knowledge and innovative technology, working collaboratively we will accelerate solutions to address industry climate challenges. Our goal was that working together, we will address and solve issues no one company can do alone.

One year out, the SCC has grown from 65 founding members to now at 90 member companies. Our members span the entire value chain and the entire globe. Through the thought leadership forums and collaboration with our key partners, we now have wholistic view of the footprint of our value chain, our top opportunities and the actions we can take to accelerate the solution towards decarbonization

My talk will focus on the opportunities and a call to action for the ecosystem of solution providers to collaborate with us to accelerate the journey to net zero

### Biography

Dr. Bhat is a Semiconductor Expert who has held senior positions within the Semiconductor Industry, Motorola, GlobalFoundries and Micron to name a few over the last 25 years. She has a Ph.D. from the University of Texas at Austin, Masters from MIT and University of Maryland and an executive MBA from Stanford Business School. During her career she has led Transversal, cross functional and multicultural teams across various continents and has led transformation projects that require foundational culture changes.

She is also passionate about creating sustainable business practices and thereby creating an ecosystem of changemakers such as corporates, government, academia and society to accelerate social and economic parity through technological innovations.

In SEMI, within her role as VP of Sustainability Programs, she is responsible for leading teams, directing client engagements, and overseeing processes and deliverables in Environmental Stewardship, Supply Chain and Supplier Resilience, including Responsible Sourcing.

## Building a Sustainable Semiconductor Value Chain with Technology and Collaboration



H. Hwang  
Head of the Environment Team  
Samsung Electronics, Seoul, Republic of Korea  
(South Korea)

**SAMSUNG**

### Abstract

Demand for the silicon chips has never been greater and so is the global attention to sustainability. As such this growing industry is asked to take on more responsibility from diverse stakeholder across and beyond its supply chain. In response hundreds of businesses, including those within the semiconductor industry, have pledged to sustainability goals in aspiration to make tomorrow available and better.

Samsung Semiconductor also places sustainability a priority in our daily business to which in September 2022, we announced our “New Environmental Strategy” to join the global effort to tackle climate change and environmental challenges. As leader of the semiconductor industry we progress technology with our chips and also believe that technology can also be solutions to our path toward sustainability. Moreover, understanding that collaboration and collective commitment of the industry is essential for the task, Samsung Semiconductor engage and initiate discussions with various stakeholders to move toward sustainability. Through this session, Samsung Semiconductor’s Environmental Team Leader, Dr. Hosong Hwang will share how the company incorporates sustainable technologies into our daily business to make tomorrow more sustainable and ways we collaborate across the value chain.

### Biography

Dr. Hosong Hwang is Corporate Vice President and the Head of the Environment Team at Samsung Semiconductor.

As the Head of the Environment Team, Dr. Hwang’s responsibilities include the Company’s pollution control, resource circulation and ecosystem monitoring. In addition, he also overlooks sustainable management practices in regards to the environment such as climate change response and renewable energy expansion. Prior to joining Samsung Semiconductor, Dr. Hwang successfully led the Environment Team at Samsung Institute of EHS Strategy where he developed and implemented various environmental policies for the Samsung Group. There, he also contributed to the Company’s research on the climate change matters, as well as environment assessments, and safety management practices.

Dr. Hwang’s main area of expertise is in environmental development and management strategy on both the local and global scale with an extensive insights on global carbon measures, sustainable development and nature conservation.

Dr. Hwang received B.S. degree in Mineral and Petroleum Engineering and M.S. degree in Environmental Geochemistry both from Seoul National University, and earned his Ph.D on Environmental Policy at Imperial College London, UK.

## The Challenge to Reduce Emissions during a Period of Growth



C. Jones  
Environmental Solutions Business Development  
Manager  
Edwards, London, United Kingdom



### Abstract

The establishment of the Semiconductor Climate Consortium underscores the semiconductor industry's unwavering dedication to confronting both its unique and shared challenges concerning greenhouse gas emissions. Given the longevity of many of these gases in our atmosphere, their management is crucial and will also gain heightened significance over time. We will examine releases from our industry using both a top-down and bottom-up approach and juxtapose them with efforts from other sectors. Central to our discussion will be emissions management strategies that resonate with the Consortium's emphasis on holistic collaboration across the value chain, bolstered by the active involvement of myriad external stakeholders.

### Biography

With a Ph.D. in chemistry and nearly four decades of dedication to Research and Development and Environmental Protection, Chris has been at the forefront of creating solutions for industries ranging from semiconductor and nuclear to military and pharmaceutical. He's crafted methods to keep our air and water clean and is currently Edwards' Environmental Solutions Business Development Manager. Always eager to share his knowledge, Chris is passionate about helping fab owners grasp their operations' local and global environmental impacts. He's genuinely committed to a greener future!

## A Call to Action for the Semiconductor Industry



A. Mohr  
Senior Director, Manufacturing & Sustainability,  
Global Government Affairs  
Intel Germany GmbH & Co. KG, Munich, Germany



### **Abstract**

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### **Biography**

Anneclaire manages the Manufacturing and Sustainability Team in Global Government Affairs/Policy and Regulatory Affairs who focuses on policy objectives related to chemicals, product energy efficiency and sustainability, Environmental, Social and Governance (ESG) and responsible business conduct, climate and EHS/environmental sustainability. Prior to joining Government Affairs, Anneclaire was an attorney in Intel's Legal Department for 25 years. Anneclaire studied law at the Robert Schuman Law University of Strasbourg, France, and graduated from the Institute of Political Studies of the Robert Schuman University, Strasbourg.

## High NA EUV introduction – the more sustainable choice? - joint presentation with ASML and imec



E. Gallagher  
Principal Member of Technical Staff  
imec, Leuven, Belgium



### Abstract

Lithography continues to underpin semiconductor manufacturing by imaging increasingly small features as IC technologies become more complex. This improved resolution is achieved by introducing generations of lithography tools with ever smaller wavelengths and larger numerical apertures. The power of 13.5nm EUV light has been demonstrated in manufacturing since the 7nm logic node. Now, engineering advances support a new, high NA, EUV scanner. Designed for capability, it also uses more power than the lower NA option. This paper will introduce the ASML EXE high NA tool and describe a simple patterning example to quantify the emissions impact associated with its introduction. The more general question of which conditions consume the least amount of power will be addressed to inform sustainable integration decisions.

### Biography

**Emily Gallagher** is a Principal Member of Technical Staff at imec, focusing on sustainability in semiconductor manufacturing, EUV pellicle membrane development, and advanced patterning. Emily earned her PhD in physics from Dartmouth College where she studied free electron lasers. After graduation, she joined IBM and became immersed in semiconductor technology. She held many wafer fabrication roles at IBM from functional characterization to process integration; the last was leading the EUV mask development effort. She joined imec in 2014 to continue EUV development work. Emily has authored over 100 technical papers, holds over 20 patents, is an SPIE Fellow and co-leads the SEMI SCC Scope1 Working Group.

**Carlo Luijten** joined ASML in 1999 as a System Engineer, after finishing his PhD in Applied Physics. Over the years he worked on various topics such as Focus control, cost of goods and machine conditioning. In 2005 he left ASML for a University position pursuing research on clean engines, fuels and sustainable mobility, then returned to ASML in 2011. From 2018 onwards he has been involved with energy consumption of EUV tools, initially from a System Engineering position. After joining ASML's ESG Sustainability Strategy team in 2021, his main role is now to define and drive the CO2 emissions reduction roadmap of ASML.

## Catalyzing a Brighter Future for the Chip Industry



F. Godemel  
Executive VP  
Schneider Electric, Marktheidenfeld, Germany



### Abstract

Chipmakers and the surrounding industry have two major responsibilities. The first is allowing other industries to digitalize by ensuring a healthy flow of chips to market. The second is to clean up their own act. Both obligations are mandatory for energy transition and, contrary to popular belief, can be met in ways that are both economically and environmentally profitable. Join this talk to see how the correct approach and the right relationships put these achievements well within reach.

### Biography

Frederic Godemel joined Schneider Electric in 1990. Since then, his career has developed mostly around the power business in both low and medium voltage.

- Frederic has held operational functions in France, China and more recently in Dubai, he is now back in France. He was appointed Executive VP for Global Field Services back in 2018, EVP for Power Systems in January 2019 and more recently in July 2020 Executive VP for Power Systems and Services.

Frederic is participating in speaking and panel opportunities on behalf of Schneider Electric, the most recent were TAQA in Abu Dhabi, TSIA in Orlando, CERA Week Houston, Reuters London and Semicon South East Asia. Topics around Decarbonization, Sustainability, Electricity 4.0, Semiconductors, Mobility, Power & Grid and Energy Efficiency.

- Frederic graduated from the Ecole Centrale Nantes in electrical engineering and holds an MBA from ESSEC Business School.



## The Journey to Sustainable Design



K. Nisewaner  
Corporate VP, General Counsel & Corporate  
Secretary  
Cadence, London, United Kingdom



### Abstract

The world is converting to data-driven everything, enabled by a seemingly endless stream of amazing semiconductor technological innovations. But the Earth is struggling to keep up, and a mindset of sustainable design is taking its rightful place near the top of the list of priorities. The promised value is tremendously exciting, yet how will we meet the demands of information gathering and knowledge extraction within the global energy envelope?

As Moore's Law is increasingly unable to keep up with the steep transistor scaling challenges ahead, purpose-built intelligent systems and computational software are rapidly becoming the pathway to extracting actionable business insights from exascale datasets. But even the processing Goliaths are challenged to bring these intelligent systems forward, increasingly overcome by an engineering skills shortage and resource and time-to-market constraints.

Cadence general counsel and corporate secretary Karna Nisewaner will provide a glimpse of how Cadence engages in sustainable best practices and offers state-of-the-art generative AI system design strategies that will empower and embolden designers, accelerate innovation, and widen the path to a sustainable future.

### Biography

Karna Nisewaner joined Cadence in 2011 and has served as general counsel and corporate secretary since September 2022. She is responsible for Cadence worldwide legal operations. In this role, she owns the creation of the company's annual environmental, social, and corporate governance (ESG) report. Prior to this role, she was corporate vice president and deputy general counsel at Cadence where she led many key functions in the legal department.

Karna received her BSE in civil engineering and operations research from Princeton University and her Juris Doctor degree from UCLA Law School.

## Qualcomm's Approach to Carbon Net-Zero and the Transformative Role of 5G for a Greener Economy



B. Sokolowski  
Managing Director & VP Government Affairs EMEA  
Qualcomm, Munich, Germany



### Abstract

As 5G network deployment continues at pace, reducing energy consumption and overall carbon footprint remains a challenge for the mobile industry. However, 5G and 6G — in connection with technologies like AI, virtualization, and the cloud — will play a role in the reaching net-zero targets globally and across industries. So, what is Qualcomm doing to achieve net-zero?

In this session, Ben Sokolowski, Managing Director and Vice President Government Affairs at Qualcomm, will give an introduction on the important role 5G will play to reduce global carbon emissions across industries as well as what Qualcomm is doing to reach net zero in its own operations and along the company's supply chain.

### Biography

Benjamin Sokolowski is Qualcomm's Vice-President Government Affairs EMEA and Managing Director for Germany since July 2022. In this role, he oversees the company's government relations in Germany and Austria and supports Qualcomm's growth in the digital transformation of new industries such as automotive and industrial IoT.

Before joining Qualcomm, Mr. Sokolowski was Head of Government Relations for the enlarged Europe at Stellantis since 2020. Additionally, he was in charge of developing Stellantis' carbon neutrality agenda and worked on the company's digital transformation and electrification projects.

Mr. Sokolowski was also Head of Government Relations at Groupe PSA for Germany and Europe (2017-2020), Head of the Berlin Office for General Motors/Opel (2015-2017) and Vice-President Public Policy at FleishmanHillard (2010-2015).

He has an MBA from the University of Applied Sciences in Berlin, a Diploma in Public Policy and Management from the University of Potsdam and participated in a Leadership Program at the London Business School.



J.-H. Mohr  
Managing Director & Partner  
Boston Consulting Group, Munich, Germany



### Biography

Jan-Hinnerk Mohr is Managing Director and Partner at Boston Consulting Group, co-leading BCG's European semiconductor practice, and is based in Berlin, Germany.

Jan has a deep passion for technology. He has served BCG's semiconductor clients for more than a decade

– his experiences covers in particular strategy & PMI, marketing & sales, and sustainability and digital. Jan has also helped many application industries in semiconductor-related questions, e.g. in the automotive industry with the digitalization/softwarization of vehicles.

His passion for passion led to several publications in the tech and semiconductor space, e.g. most recently on CO2 emissions (scope 1,2 *and* 3) in the semiconductor industry. Prior, Jan has served as an ambassador to the World Economic Forum to push the thinking of Future Mobility and self-driving cars, and presented the results at the Annual Meeting in Davos in 2015.

Jan holds a Master's degree in Business Administration & Econometrics with distinction from Mannheim University. Besides, Jan has studied in London, Shanghai and the United States.

## Coming Soon



J.-M. Girard  
CTO and SVP of Manufacturing Technologies  
Air Liquide Advanced Materials, Paris, France



### Abstract

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### Biography

Jean-Marc Girard, Ph.D. is the CTO and Sr. VP of Manufacturing Technologies at Air Liquide Advanced Materials (ALAM), which has become a leading supplier and technology provider in the field of ALD/CVD materials and advanced Dry Etching gases (the enScribe™ product line). He has been appointed Air Liquide Group Fellow in 2012, and is a co-inventor to ~50 patents, mainly related to semiconductor processing, materials and dispense technologies.

Within ALAM, Jean-Marc globally manages the Research and Development (from inception to scale up of novel materials), oversees strategic engagements and collaborations with leading customers, equipment companies, and research institutes, and supervises the Intellectual Property generation and portfolio management associated with this activity.

Prior to this position, Jean-Marc has 10 years of experience of semiconductor R&D in Japan and Europe. Jean-Marc holds a B.Sc. in Physical Chemistry and a Ph.D. from the CEA / Université Paris-Sud in Plasma Physics.

## Coming Soon



B. Lussier  
Vice President, Regional Sales Europe  
TEL, Crawley, United Kingdom



## Abstract

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## Biography

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